

Conditions...

"...On Transformations"

1. What are conditions on transformations?

- A/A (p.85) as a condition on *application* of transformations. More precisely, a condition on the choice of factorization in case of ambiguity.

Passive

SD: X NP V NP Y
1 2 3 4 5

SC: 1 4 *be - en* 3 *by*+2 5

(1) A factorization blocked by A/A

John's winning — the race — surprised — me — \emptyset ==>
1 2 3 4 5

*John's winning I was surprised by the race.

- An example of a condition on the *functioning* of a specific rule.
- One can also imagine conditions on the *form* of rules, i.e. conditions on the grammars themselves.

(2) Comp-substitution universal.

No rule may fill COMP by rightward movement.

(3) Background on Comp:

C empty in the base. Filled by transformation:

- with *wh* if possible,
- otherwise with *that* if Aux is Tense,
- otherwise with *for*.

Normal proposal:

The rules are language particular, the conditions on functioning universal.

Tantalizing Possibility:

The rules are universal (or some of them, anyway), and the conditions on functioning are language-specific?

This is a key step towards Principles and Parameters, but then he retreats, but most of the paper in fact takes up arguably universal conditions on the *functioning* of rules.]

2. SSC/TSC

Passive should apply blindly to:

- (4) a. I believe the dog to be hungry.
b. I believe the dog is hungry.

But it doesn't:

- (5) a. The dog is believed to be hungry.
b. *The dog is believed is hungry.

(6) Tensed S Condition: version 1

No rule can involve X, Y in the structure

...X...[α ...Y...]

where α is a tensed sentence. [20]

- The TSC derives effects of the "Insertion Prohibition" (= phase impenetrability for insertion of "morphological material") for tensed sentences.

- Assumption: *Each other* derived by *each* lowering
The candidates each hated the others. ==> The candidates hated each other.

- (7) a. The candidates expected each other to win.
b. *The candidates expected that each other would win.

(8) Overt subjects blocking *each*-movement: towards SSC

a. The candidates each expected [PRO to defeat the other]. ==>
The candidates expected [PRO to defeat *each* other].

b. The men each expected [the soldier to shoot the other]. =X=>
*The candidates expected [the soldier to defeat each other].

(9) Specified Subject Condition: version 1

No rule can involve X, Y in the structure

...X...[α ...Z...-WYV...]

where Z is the specified subject of WYV in α . [26]

Specified subject:

A subject NP that contains either lexical items or a non-anaphoric pronoun.

"Within the extended standard theory, as developed in the references cited earlier, both NP and S are nodes to which cyclic operations apply, and the notion "subject of" is defined not only in S, but also in such NPs as [(10)], where *John*, in all cases, is the 'subject,' in an extended sense of this term:

- (10) a. John's refusal to leave
- b. John's picture of Bill
- c. John's strategy for victory.

Correspondingly, *in [(9)] α can be either NP or S.*" [p. 91, emphasis mine]

NOTE ==> by "S", he means "CP" (S-bar) [see below]

Assumption: **PRO* each.

Because "subject" is defined as the specifier of a "cyclic node" (NP or S)...

▪ **...each-movement** also fails to apply downward into an NP with a subject:

- (11) a. The men each saw pictures of the other ==>
 The men saw pictures of each other.
- b. The men each saw John's pictures of the other =X=>
 *The men saw John's pictures of each other.

▪ **...and wh-movement** fails to apply (upward) from an NP with a subject:

- (12) a. Who did you see pictures of __?
- b. *Who did you see John's pictures of __?
 [p. 91]

▪ **..It-replacement (Tough Movement)** applies out of a clause with a PRO subject, not out of a clause with a lexical NP:

- (13) a. The hard work is pleasant [for the rich] [PRO to do].
- b. *The hard work is pleasant [for the rich] [for poor immigrants to do].
- (14) a. Latin is a waste of time [for us] [PRO to learn].
- b. *Latin is a waste of time [for us] [for them to teach us].

▪ **...Disjoint Reference Rule (Principle B):** a rule of interpretation (RI) that marks as disjoint two NPs in the configuration [NP – V – NP – X].

- (15) **Unlike Person Constraint case**
- a. I expected them to visit me.
- b. *I expected me to visit them.

- (16) **Disjoint Reference (Postal 1969)**
- a. We expect them to visit me.
- b. *We expect me to visit them.

▪ **..not-many rule:** (17c), if good, means "J's pix of many of the children are such that I didn't see them". So another RI obeys the SSC. [p. 95]

- (17) a. I didn't see many of the pictures.
- b. I didn't see pictures of many of the children.
- c. I didn't see John's pictures of many of the children.

▪ Likewise (Lasnik, p.c. to NC) for *not-enough* association, where the judgment concerns actual grammaticality

- (18) a. You didn't understand the proofs of enough of the theorems for me to be justified in giving you an A.
- b. *You didn't understand Euclid's proofs of enough of the theorems for me to be justified in giving you an A.

3. The Strict Cycle / The COMP escape hatch

If the Strict Cycle Condition in (19) holds, *wh*-movement must be a cyclic rule, since it applies in indirect questions and relatives:

- (19) **Strict Cycle Condition [(51)]**
No rule can apply to a domain dominated by a cyclic node *A* in such a way as to affect solely a proper subdomain of *A* dominated by a node *B* which is also a cyclic node.

Note: The Strict Cycle Condition is introduced here for a curious purpose -- to provide a general basis for believing a particular analysis (successive-cyclic *wh*-movement) to be true. At the end of the section, it does some real work.

(20) **Notations to watch out for!**

S → COMP S'

S' → NP Aux VP

[(54) -- NOTE S' and S have opposite senses from the tradition!]

(21) ~~Phase Impenetrability Condition~~

TSC/SSC(revised) + COMP Escape Hatch

No rule can involve X, Y in the structure

...X...[α...Z...—WYV...]

where (a) Z is the specified subject of WYV in α, or

(b) Y is in COMP and X is not in COMP, or

(c) Y is not in COMP and α is a tensed S, or

[p. 98, (55)]

Remember:

- Tensed S means *Tensed S'*!
- α ranges over the phases cyclic nodes NP and "S"
- Thus movement to COMP within a single "S" is ok, even if it crosses a subject.
- Example (12b) is ruled out because NP is a node with a "subject" but has no COMP position, so movement crosses both a subject and a cyclic node.

WH-island condition for tensed wh-islands:

- Example (22) is excluded because there is only one COMP escape hatch from the TSC in the embedded question and the **Strict Cycle** in (19) prevents a countercyclic use of that escape hatch.

(22) *What did he wonder where John put ____ _____. [(57)]

4. Superiority Condition/Subjacency Condition

Assumption: PRO is not a Specified Subject.

Problem: Infinitival indirect questions are islands.

- (23)
- a. %What crimes does the FBI know how to solve.
 - b. *What crimes does the FBI know whether to solve.
 - c. *What books does John know to whom to give.
 - d. *To whom does John know what books to give.

(24) **Superiority Condition**

No rule can involve X, Y in the structure

...X...[α...Z...—WYV...]

where the rule applies ambiguously to Z and Y and Z is superior to Y.

[NB: A constraint on rule *application*, not a constraint on rule *form*.

Restricts the ambiguity of application]

The Superiority Condition requires matrix *wh*-movement to pick the *wh*-phrase in COMP, not the remaining in-situ phrase. Application of *wh*-movement to the phrase in CP leaves an interrogative COMP empty: [p. 102]

A rule of interpretation [p. 153] excludes this:

(25) **Rule of interpretation for +WH COMP**

A +WH COMP is interpreted only when it contains a *wh*-phrase.

- Excludes
- (26) just as *wh*-island violations are excluded.

(26) *John knows what who saw.

(27) **"Subjacent"**

If X is superior to Y in a phrase marker P, then Y is *subjacent* to X if there is at most one cyclic category C ≠ Y such that C contains Y and C does not contain X. [p. 102]

(28) **Subjacency Condition** [p. 103, (80)]

No rule can involve X, Y -- X superior to Y -- if Y is not subjacent to X.

(29) a. COMP he believes [_SCOMP John saw who]

[ok *wh*-movement]

b. COMP he believe [_{NP} the claim [_S COMP John saw who]]

[**wh*-movement]

5. Subjacency extensions: controversial judgments

- (30) [*]Who did you hear stories about a picture of __.
[Chomsky]
- vs.
- (31) [ok]What books does the government prescribe the height of the lettering on __.
[Ross 1967]

A problem left open.

6. Extraction out of subjects

- (32) *Who did [stories about __] terrify John?
- (33) *What did [_{NP} [_S that John saw __]] surprise Mary?
- (34) **Subject condition [version 1]**
In structures of the general form
...X...[_α...Z...—WYV...]
α may not be a subject phrase properly containing Y.
- Creates a redundancy with the Subjacency condition where α is an S contained in an NP, which includes sentential subjects (for Chomsky) as well as CNPC cases.[p. 108]
 - Eliminate the redundancy: *restrict the Subject Condition to cases in which Y is subjacent to X*. This has no empirical effect on *wh* movement, but ...
 - ...does have an effect on *each*-movement. Condition (34) unmodified incorrectly excludes *each*-movement applying across S and NP in (35):

- (35) We expect [_S [_{NP} pictures of each other] to be on sale].
- (36) **Subject condition [version 2]**
No rule can involve X, Y in the structure
...X...[_α...Y...]
where (a) α is a subject phrase properly containing MMC(Y) (i.e. the smallest maximal projection containing Y)
and (b) Y is subjacent to X.

So not being subjacent in this case can make things good! Pretty tricky, this guy.

- Likewise for the RI of Disjoint Reference:
(37) We expected pictures of me to be on sale.

- "*Proper containment*" matters. It is ok to move *each* to a subject:
(38) [ok] They expect each other to win. [p. 109. (104a)]

7. No raising to object

- "There is no necessity for a rule raising the subject of an embedded sentence to the object position of the matrix sentence." [p. 113]

==> NB This "economy" argument still presupposes a transformational rule system.

- Perhaps we should forbid string-vacuous movement. [pp. 113-114]

8. "Specified subject" replaced by reference to a subject's controller

- (39) *We persuaded Bill [PRO to kill each other].
[Will Leben, p.c. to NC, p. 114 (112)]
- (40) We persuaded Bill [PRO to kill us].
- vs. *promise*
- (41) **Everything but the Kitchen Sink**
No rule can involve X, Y (X superior to Y) in the structure
...X...[_α...Z...—WYV...]...
where
(a) Z is the subject of WYV and is not controlled by a category containing X,
or
(b) α is a subject phrase properly containing MMC(Y) and Y is subjacent to X,
or
(c) Y is in COMP and X is not in COMP, or
(d) Y is not in COMP and α is a tensed S.

[Note the striking unwillingness to allow PRO to function like any other NP!]

9. Other cases where controller is relevant

- Arbitrary null subject (Δ) blocks *each*-movement and RI:
- (42) *We heard about plans to kill each other.
- (43) a. They will obey [any request to kill each other]
 b. *They will okay [any request to kill each other]
- But note the still puzzling "honey-dripping" problem on p. 124!
- (44) a. Why are John and Mary letting the honey drip on each other's feet?
 b. *Why are John and Mary letting Bill drip honey on each other's feet?
 c. Why are they letting the baby fall on each other's laps?
 d. *Why are they letting Bill drop the baby on each other's laps?
 [Bordelois, p.c. to NC; (a) from Kayne]

"The examples suggest that a notion of "agency" is involved and that perhaps the notion "specified agent" is the critical one rather than formal subject."

10. First use of the word "trace"

Why does an overt subject block *Tough*-movement, but PRO does not?

Suggestion:

- The moved NP actually replaces PRO as the first step of movement.
- Reasonable, since the NP replaces *it* as its final step.

- (45) a. ??The men are easy for each other to please.
 b. *John seems to the men to like each other.
 c. Toys are fun for the kids to give each other.
- To explain the badness of (45a-b), we might order *each*-movement before *it*-replacement.
 - So *the men* becomes a subject in (45a) (replacing *it*) after the last chance for *each* to lower to *other*.
 - In (45b), *each* cannot lower after Raising/*it*-replacement for the same reason as in (45a). Here, we might imagine that *each*-could have lowered from *men* before raising of *John* -- but this was blocked by SS (since *John* is a subject)

- So far so good -- -but this story messes up on (45c), however, on the assumption that *the kids* is not the downstairs subject. *Toys* should be in the way if it moves through the PRO position.

Solution [?!]:

- "We might account for [(45b)] by assuming that when the NP *John* replaces *it*...it leaves behind a "trace" which it controls. The trace might be PRO, or it might be the null element if we think of the transformation as moving only the terminal symbol *John* to the NP subject position of the matrix sentence, leaving unaltered the nodes that originally dominated it...If the trace is PRO, it will be deleted by a final rule that deletes controlled PRO in such sentences as *We expected to leave*. The controlled trace blocks *each*-Movement, so that [(45b)] is ungrammatical." [p. 131]
- We now can drop the ordering assumption about *it*-replacement and *each*-movement. This lets in (45c) [though it's not clear to me how this works, consistent with the Strict Cycle and traces].
- Something else blocks *each*-movement in (45a).
 [p. 132]

==> This somewhat confused discussion nonetheless makes clear one of the ways in which the concept of "trace" can eliminate stipulated ordering among rules. If R1 moves X, and R2 is sensitive to the pre-R1 position of X, one approach orders R2<R1. If movement of X leaves a trace, however, R1<R2 or free ordering of R1,R2 will also work.

A less confused argument for traces:

(46) *Who did they expect __ to kill each other?

- An ordering solution? *Each*-movement precedes *wh*-movement on the highest cycle (so *each*-movement never sees an embedded clause without *who* in subject position).
- Alternative: *wh*-movement also leaves a "trace" [p. 135], and we can dispense with the trace.

[Alternative #2: *wh*-movement is postcyclic. No! We know it isn't or else we wouldn't find *wh*-island effects.]

11. Why SSC?

An ambiguity-reducing device that corresponds to a "reasonable perceptual strategy"
[p. 137; see also p.143]

12. Left-right asymmetries

Subjacency condition plus the COMP-substitution universal derives the apparent stricter upward-boundedness of right-ward movement rules, vs. leftward.

(47) *John believes that a man was here despite the evidence to the contrary *who comes from Philadelphia*.

13. The complementizer system

[Interesting and prescient discussion omitted.]

"..on Rules of Grammar" — and beyond!

1. Towards just two transformations

Notation:

(48) $E(Y, \alpha, X, K)$

where Y is a substring of the terminal string X, K is a phrase marker of X, and α is an arbitrary string in the full vocabulary.

"Y is an α of X with respect to K."

Example:

(49) If K is a phrase marker of the terminal string *the man left*, then
 $E(\textit{the man}, NP, \textit{the man left}, K)$

- Proposal 0: Each factor in the SD of a transformation is an instance of E.

(50) **Traditional Passive:**

SD: $vbl, NP, Aux, V, NP, by, \#, vbl$
1 2 3 4 5 6 7 8

SC: 5 replaces 2, 2 replaces 7.

- **Proposal 1:** A factor changed by a rule must be either a fixed terminal string or a string of a constant or variable category (e.g. NP). An unrestricted variable *vbl* will be satisfied only by a factor that is not changed by the rule. [p. 172]
- **Proposal 2:** Converse of proposal 1 -- If a term α_i of SD is a constant or variable category, then the factor satisfying α_i must be changed by the rule.

Consequence for passive:

Split into preposing/postposing

(51) **Passive Preposing**

vbl, NP, vbl, NP, vbl

(52) a. John is believed *t* to be incompetent
b. Yesterday's lecture *t*

That is:

(53) **NP Movement**

Move NP.

This overgenerates, unless constraints rule out many of the outputs.

2. Reciprocals/DR

- Both the "reciprocal rule" and DR are now rules of interpretation, blockable by SSC. [p. 178]
- SSC: "a condition on surface structures applying quite generally to anaphora (hence to the NP-trace relation), rather than a condition on transformations." [p. 179]

3. Traces count/"Sentence Grammar"

(54) a. *John seems to the men [*t* to like each other]
b. John seems to the men [*t* to like them]

- "The trace [*is*] a bound variable, with all of the (relevant) properties of its 'controller'" (p. 181)
- "Movement of a phrase by a transformation leaves behind a trace controlled by the moved phrase." (p. 181)

(55) Each of the men wants [John to like the others].

- Why is this ok? The *each...other* relation is not a property of sentence-grammar.
- Likewise, the rule that relates a pronoun to its antecedent is not a property of sentence-grammar -- only DR is.

(56) John thought that Bill liked him.

4. PRO counts/Restructuring (PRO-deletion)

- PRO counts

- (57) a. *John promised the men [PRO to like each other].
 b. John persuaded the men [PRO to like each other]

- PRO is deleted (constructions later identified [by Rizzi] as Restructuring)

- (58) a. Paulo nos viu examinar a garota.
 b. *Paulo nos viu o especialista examinar __.
 c. ok O medico nos quer examinar.

14. Wh-movement

Procedure: As a rule of semantic interpretation (SI-1),

- (59) a. Find the place from which *who* moved.
 b. Mark this position by *x*.
 c. Interpret *who* as "for which person *x*", controlling the free variable *x*.

[Same procedure might apply to trace of raising to subject.]

Useful for things like:

Leftness condition [weak crossover] [(105)]

- (60) A variable cannot be the antecedent of a pronoun to its left.

Strong crossover: Treat the variable bound by *wh* as a name.

15. Surface Structure! LF!

Interpretive Semantics:

Some properties of LF are determined by surface structure.
 Others (thematic relations) are determined by deep structure.

If traces are real:

Surface structure determines LF. [(73)]

Rules mapping to LF (SI-1):

- (i) reciprocal interpretation
- (ii) disjoint reference

- (iii) replacement of *who* by its meaning
- (iv) conventions on control and variable binding (e.g. treat a *wh*-trace as a name, p. 195)
- (v) conditions on anaphora (reflexives)

"Filters and Control"

Arbitrary aspects of transformational SDs and arbitrary orderings may miss the point, which is -- simple, unordered transformations + surface filter.

Example:

- (61) Who do you think (*that) __ left.

Solution 1: Order *wh*-movement after *that*-deletion, and make it's SD sensitive to the presence of *that*.

Solution 2: Rule of free deletion "in COMP" unordered with respect to a simple rule of *wh*-movement + surface filter **that t*.

[Why Spanish lacks the effect:

pro-drop is a rule of NP-deletion that also affects traces.]

- "Free deletion in COMP" also yields the paradigm of English relative clauses, when supplemented by a filter "*NP Tns VP unless main clause or / Comp __".

[Necessary to modify the *that t* filter so as not to rule out *the book that impressed us*.]

16. Zeitgeist 1: questioning transformations

If:

- we are convinced that movement structures are identifiable at surface structure (trace theory); and
- we are convinced that such structures reflect processes that are not construction-specific or specially ordered, as in classical transformational grammar

Then:

- we are naturally led to reconsider the formal properties of the processes themselves.

The transformational apparatus that served as a notation for construction-specific, ordered rules (conditions on analysability etc.) might be a poor match for the true mechanisms as revealed by the reorganization of the rest of the grammar.

Especially attractive because of peculiarities like:

- Redundancies between "antecedent-trace" relations/chain formation and transformations.
- Distinctions between A-movement and A-bar movement and the concomitant ban on improper movement.

These issues, which emerged in the mid-1970s, helped form the landscape of syntactic research in which we work today.

"Everyone agrees that syntax involves context-free phrase-structure rules/Merge plus something.

**"But plus *what...?*"
-Zeitgeist (1977)**

17. ...plus lexical rules?

Transformational theory of passive in (Extended) Standard Theory

- Reassociation of internal argument with subject and reassociation of external argument with object is the result of a transformational rule of Passive.

Adjectival passive:

- Shows the same reassociation:

- (62) a. Nothing daunts John.
b. John is undaunted

- involves a morpheme also attachable to nouns (*a salaried employee*)
- changes category (V->A) -- adjectives disallow NP complements:

- (63) a. Mary was taught French.
b. Mary was untaught (*French).

- feeds processes of derivational morphology like *un-* prefixation that care about the derived category

- (64) a. Antarctica is uninhabited.
b. *Someone uninhabits Antarctica.

Givens:

- Category-changing rules are morphological processes in the lexicon.
- Lexical integrity: Transformations do not look inside lexical items.

18. Towards LFG...

[to be continued]